

On the structural position of non-peripheral adjunct clauses

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Abstract

This paper is concerned with the structural position occupied by a subset of adjunct clauses, namely those which can occur in final position without a special intonational break. After a definition of the structures to be considered, it will be shown that the classical assumption according to which they are generated as adjuncts is empirically superior to the adjunct-as-complement analysis (cf. Larson 1988; 1990), and to more recent analyses, which follow an antisymmetric framework (cf. Kayne 1994). It will also be shown that a base generation account of preverbal adverbial clauses is to be preferred over a movement analysis on the basis of empirical data, and in conformity with theoretical economy assumptions (Merge over Move).

1. Introduction

In descriptive grammars, there is a well-established distinction between two types of adjunct clauses, which corresponds roughly to the classical distinction which is usually made for adverbs between sentence and VP adverbs (cf. Jackendoff 1972; Costa 1998; a.o.). These two types of clauses have received different names in the literature: adjuncts vs. disjuncts (cf. Quirk et al. 1985); predicate vs. sentence adverbial clauses (cf. Renzi & Salvi 1991; Bosque & Demonte 1999; Berta et al. 1999); integrated vs. peripheral adverbial clauses (cf. Galán Rodríguez 1999). These two syntactic types of adverbial clauses have been shown to occupy different unmarked positions in the matrix clause, and to behave differently with respect to several syntactic tests.

The present study focuses only on the first type of adverbial clauses and is restricted to finite and infinitival adverbial clauses which show some mobility and which clearly are not subcategorised. This includes a subset of reason clauses, a subset of purpose clauses, a subset of conditional clauses, almost all temporal clauses, manner clauses, and other minor semantic types, such as

negative circumstance clauses. Peripheral adverbial clauses, which are always generated in high positions, comparative and result clauses, as well as some other structures which do not show the typical mobility associated with adverbial clauses, e.g. reason clauses with coordination-like properties (cf. Lobo 2001), are excluded from this study.

Although syntactic studies in generative grammar never paid too much attention to adverbial clauses, it is possible to find, in the government and binding framework (cf. Chomsky 1981, 1986), some references to these structures. Haegeman 1991, for instance, assumes that adverbial clauses are adjoined to VP. Rizzi 1990 and Cinque 1990 assume that adverbial clauses may be adjoined either to VP or to some higher functional projection (e.g. TP or IP).

Right adjunction, however, has been severely challenged in more recent proposals. In the antisymmetric program of Kayne 1994, right adjunction and multiple adjunction are theoretically not allowed. Although Kayne himself doesn't work on right adjuncts in the clausal domain, he suggests that a Larson type analysis (cf. Larson 1988, 1990; Stroik 1990) may constitute a solution to the apparent violation by right adjuncts of the Linear Correspondence Axiom (LCA). Other authors have proposed alternative analyses to the classical treatment of right adjuncts as structural adjuncts, adopting either a base left specifier or left adjunction analysis of all adjuncts followed by successive movements of IP or VP further left (cf. Barbiers 1995; Bianchi 2000). Others have pursued more radical analyses. Nilsen 2000 treats right adjuncts as reduced relative clauses on the event, in a way similar to Kayne's treatment of reduced relatives in the DP domain. Uriagereka 2001 proposes that right adjuncts have a special derivational status and are inserted later in the derivation.

It is the purpose of this paper to show that the classical adjunction analysis is empirically superior to the alternative proposals, and accounts better for crosslinguistic variation w.r.t. the order main clause-subordinate clause. This is in accordance with several authors who, despite new theoretical proposals, continue to maintain the classical adjunction analysis (cf. Williams 1994; Ernst 2000, 2002; Svenonius 2001). It will also be shown, following Bianchi 1997, that it is desirable to revise the definition of binding principles in order to distinguish principle C from other binding relations, since a uniform binding theory seems to be problematic. As to the initial position of adverbial clauses, it will be shown that a base generation analysis, driven by discourse factors, accounts better for empirical facts.

2. Two syntactic types of adverbial clauses

As described in descriptive grammars (cf. Quirk et al. 1985; Renzi & Salvi 1991; Bosque & Demonte 1999) and related studies (cf. Berta et al. 1999), adverbial clauses may be split into (at least) two syntactic groups. The two kinds of adverbial clauses differ with respect to the unmarked position they

occupy in the matrix clause. For some adverbial clauses the unmarked position is the final one without any kind of special intonational break, but the initial position is also allowed. For other adverbial clauses the unmarked position is the initial one; the final position is only possible after a pause or an intonational break (||). This is illustrated for Portuguese for reason and conditional clauses below:

- (1) a. O Zé adormeceu a meio do filme *porque estava muito cansado*.
Zé fell asleep during the movie because [he] was very tired.
a'. *Porque estava muito cansado*, o Zé adormeceu a meio do filme.
Because [he] was very tired, Zé fell asleep during the movie.
b. O Zé pode ficar a trabalhar até mais tarde *se não fizer barulho*.
Zé can stay to work until later if [he] doesn't make any noise.
b'. *Se não fizer barulho*, o Zé pode ficar a trabalhar até mais tarde.
If [he] doesn't make any noise, Zé can stay to work until later.
- (2) a. *Uma vez que estava muito cansado*, o Zé adormeceu a meio do filme.
Since (lit. 'one time that') [he] was very tired, Zé fell asleep during the movie.
a'. *O Zé adormeceu a meio do filme *uma vez que estava muito cansado*.
(ok temporal reading)
a". O Zé adormeceu a meio do filme, || *uma vez que estava muito cansado*.
b. *Desde que não faça barulho*, o Zé pode ficar a trabalhar até mais tarde.
Provided that [he] makes no noise, Zé can stay to work until later.
b'. *O Zé pode ficar a trabalhar até mais tarde *desde que não faça barulho*.
b". O Zé pode ficar a trabalhar até mais tarde, || *desde que não faça barulho*.

I will call the first type non-peripheral adverbial clauses, and the second type peripheral adverbial clauses.

The initial position for non-peripheral adverbial clauses is not equally easy for all of them. Some occur more easily than others in initial position. For temporal, conditional, and negative circumstance clauses, the initial position is perfect; for reason and purpose clauses, the initial position is slightly marked; for manner clauses, it is quite marked, but improves with an adverbial antecedent:

- (3) a. *Quando o Zé tocou à campainha*, a mãe abriu-lhe a porta.
When Zé rang the bell, his mother opened him the door.
b. *Se a relva estiver seca*, os meninos podem brincar no jardim.
If the grass is dry, the children can play in the garden.
c. *Sem fazer qualquer barulho*, o Zé desceu as escadas e saiu de casa.
Without making any noise, Zé walked down the stairs and left home.
- (4) a. *?Porque era já muito tarde*, resolvemos ir para casa.
Because [it] already was too late, [we] decided to go home.
b. *?Para fazer uma surpresa à mãe*, o Zé arrumou a casa toda.
To surprise his mother, Zé cleaned all the house.
- (5) *?(Tal) como a mãe costumava fazer*, o Zé fez uns scones deliciosos.
Exactly as his mother used to do, Zé did some delicious scones.

As to the final position, only reason clauses with *como* cannot occur in final position, even after an intonational break:

- (6) Como esteve doente, o Zé faltou ao exame.
Since [he] was sick, Zé missed the exam.
- (7) *O Zé faltou ao exame, || como esteve doente.

Peripheral and non-peripheral clauses, as described in descriptive grammars, behave differently with respect to several syntactic constructions. Non-peripheral clauses may be clefted, fall under the scope of negation and of focus particles, function as answers to wh-questions, occur in alternative interrogation and in alternative negation. For peripheral clauses, all these constructions result in ungrammaticality.

Interestingly, there isn't a strict correlation between semantic types and syntactic types of adverbial clauses, contrary to what is suggested in Peres 1997. In a single (traditional) semantic class, there may be structures with different syntactic behaviours. This is illustrated below for reason and conditional clauses:

<clefts>

- (8) a. *Foi porque estava doente* que o Zé faltou à aula.
It was because he was sick that Zé missed the class.
b. **Foi como/já que/uma vez que estava doente* que o Zé faltou à aula.
It was since he was sick that Zé missed the class.

- (9) a. Era *se eu ganhasse a lotaria* que eu comprava esta casa.
It would be if I won the jackpot that I would buy this house.
b. *Era *desde que eu ganhasse a lotaria* que eu comprava esta casa.
It would be provided that I won the jackpot that I would buy this house.

<scope of negation (focus negation)>

- (10) a. O Zé *não* faltou à aula *porque estava doente*.
Zé didn't miss the class because he was sick.
b. *O Zé *não* faltou à aula *como/já que/uma vez que estava doente*.
Zé didn't miss the class since he was sick.

- (11) a. Eu *não* comprava esta casa *se ganhasse a lotaria*.
I wouldn't buy this house if I won the jackpot.
b. *Eu *não* comprava esta casa *desde que ganhasse a lotaria*.
I wouldn't buy this house provided that I won the jackpot.

<scope of focus particles>

- (12) a. O Zé *só* faltou à aula *porque esteve doente*.
Zé only missed the class because he was sick.
b. *O Zé *só* faltou à aula *como/já que/uma vez que estava doente*.
Zé only missed the class since he was sick.

- (13) a. Eu *só* compraria esta casa *se ganhasse a lotaria*.
I would only buy this house if I won the jackpot.
b. *Eu *só* compraria esta casa *desde que ganhasse a lotaria*.
I would only buy this house provided that I won the jackpot.

<answers to wh questions>

- (14) a. – Por que faltou o Zé?/ – *Porque esteve doente*.
Why did Zé miss (the class)?/Because he was sick.
b. *- Por que faltou o Zé?/ – *Como/já que/uma vez que estava doente*.
Why did Zé miss (the class)?/Since he was sick.
- (15) a. – Em que circunstâncias compravas esta casa?/ – *Se ganhasse a lotaria*.
In what circumstances would you buy this house?/ If I won the jackpot.
b. ??/*- Em que circunstâncias compravas esta casa?/ – *Desde que ganhasse a lotaria*.
In what circumstances would you buy this house?/ Provided that I won the jackpot.

<alternative negation>

- (16) a. O Zé não faltou à aula porque esteve doente, mas porque acordou tarde.
Zé didn't miss the class because he was sick, but because he woke up late.
- b. *O Zé não faltou à aula já que esteve doente, mas já que acordou tarde.
Zé didn't miss the class since he was sick, but since he woke up late.

- (17) a. Não comprava esta casa se ganhasse a lotaria, mas (sim) se mudasse de emprego.
I wouldn't buy this house if I won the jackpot but (yes) if I changed jobs.
- b. *Não comprava esta casa desde que ganhasse a lotaria, mas (sim) desde que mudasse de emprego.
I wouldn't buy this house provided that I won the jackpot but (yes) provided that I changed jobs

<alternative interrogation>

- (18) a. O Zé faltou à aula porque esteve doente ou porque acordou tarde?
Did Zé miss the class because he was sick or because he woke up late?
- b. *O Zé faltou à aula já que esteve doente ou já que acordou tarde?
Did Zé miss the class since he was sick or since he woke up late?
- (19) a. Compravas esta casa se ganhasses a lotaria ou se mudasses de emprego?
Would you buy this house if you won the jackpot or if you changed jobs?
- b. *Compravas esta casa desde que ganhasses a lotaria ou desde que mudasses de emprego?
Would you buy this house provided that you won the jackpot or provided that you changed jobs?

Temporal clauses (e.g. clauses with *quando*, *antes*, *depois*, *enquanto*, *sempre que*, *logo que...*), manner clauses (e.g. *como*), event purpose clauses (e.g. *para (que)*, *a fim de*), negative circumstance clauses (e.g. *sem (que)*), and a subset of conditional clauses (e.g. *se*, *caso*) and of reason clauses (e.g. *porque*) behave as non-peripheral adverbial clauses; concessive clauses (e.g. *embora*), conditional-concessives (e.g. *ainda que...*), speaker-oriented purpose clauses (e.g. *para ser sincero...*), a subset of conditional (e.g. *desde que*, *contanto que*, *a não ser que...*) and of reason clauses (e.g. *como*, *já que*, *uma vez que...*), and

comment clauses (known as *conformativas* in Portuguese grammars) behave as peripheral clauses w. r. t. these constructions.

In the remainder of this study, I will only consider the first type of adjunct clauses. Unlike peripheral clauses, which seem to be inherently specified with a presuppositional feature, or an 'according to expectations' reading, non-peripheral clauses seem to be neutral or underspecified w.r.t. discourse features. Therefore, they will be able to occur either in initial or in final position, according to their discourse function.

It is interesting to note that, in Romance languages, connectives which introduce non-peripheral finite and infinitival adverbial clauses, and which presumably are underspecified for an expectedness feature, seem to share other grammatical properties: namely semantic and categorial transparency, contrary to what happens with connectives of peripheral adverbial clauses, which are in the general case semantically more opaque.

In Ambar 1988, 1999 and Zubizarreta 1998, a.o., question-answer pairs are used to test the informational status of constituents. Using question-answer pairs, it can be shown that left and right non-peripheral adverbial clauses have a different interpretation. Final non-peripheral adverbial clauses can be the focus or constitute a part of the focus, whereas initial adverbial clauses, as has been reported for initial adjuncts (e.g. Cinque 1990), have a different informational status, and behave essentially as background information. When the adverbial clause corresponds to the focus, only the final position is allowed. When the adverbial clause is not part of the focus, i.e. when the question focuses on the VP and the adverbial clause co-occurs with a VP proform, the final position is inappropriate. When the VP is the focus but the adverbial clause is not contained in the question, both positions are allowed, although the initial position is more marked:

- (20) Quando é que o Pedro desmaiou?
When is [it] that Pedro fainted?
- a. (O Pedro desmaiou) *quando chegou a casa*.
(Pedro fainted) when [he] came home.
 - b. # *Quando chegou a casa*, o Pedro desmaiou.
When [he] came home, Pedro fainted.
- (21) O que aconteceu ao Pedro *quando chegou a casa*?
What happened to Pedro when [he] came home?
- a. (Quando chegou a casa, o Pedro) desmaiou.
(When [he] came home, Pedro) fainted.
 - b. # O Pedro desmaiou *quando chegou a casa*.
Pedro fainted when he came home.
- (22) O que aconteceu ao Pedro?
What happened to Pedro?

- a. ?Quando chegou a casa, (o Pedro) desmaiou.
When [he] came home, (Pedro) fainted.
- b. (O Pedro) desmaiou quando chegou a casa.
(Pedro) fainted when [he] came home.

Let's now consider right and left non-peripheral adverbial clauses in turn.

3. The behaviour of right non-peripheral adjunct clauses

3.1. Merge in a low position w.r.t. the subject and scope particles: *evidence from binding and scope phenomena*

Right non-peripheral adverbial clauses occupy a lower position than the matrix subject and scope particles:

i) A DP subject of a right adverbial clause cannot be coreferential with a pronominal subject of the matrix clause, contrary to what happens when the clause occupies an initial position:

- (23) *[-]_i abriu a janela quando o Zé_i entrou.
[he] opened the window when Zé came in.

- (24) Quando o Zé_i entrou, [-]_i abriu a janela.
When Zé came in, [he] opened the window.

The ungrammaticality of (23) is plausibly a consequence of a violation of principle C of the binding theory: a DP subject is free, i.e. it cannot be c-commanded by a coreferent nominal constituent.

ii) Right non-peripheral adverbial clauses, as mentioned before, can be under the scope of negation and of focus particles, in contrast with peripheral adverbial clauses:

- (25) a. O Zé não faltou às aulas porque esteve doente.
Zé didn't miss classes because [he] was sick.
b. *O Zé não faltou às aulas visto que esteve doente.
Zé didn't miss classes since [he] was sick.

- (26) a. O Zé só faltou às aulas porque esteve doente.
Zé only missed classes because [he] was sick.
b. *O Zé só faltou às aulas visto que esteve doente.
Zé only missed classes since [he] was sick.

If, as it is standardly assumed, scope involves c-command, then right non-peripheral adverbial clauses may be in the c-command domain of negation and focus particles.

The structural position of negation and of focus particles is a controversial issue. As to sentential negation, the widespread assumption is that it corresponds to a functional node in the functional domain above VP (cf. Pollock 1989). In Belletti 1990, for example, it occupies an intermediate position between AgrSP and TP.

However, it is not clear that the kind of negation that I'm considering here, which has been called in the literature focus negation or constituent negation (cf. Jackendoff 1972; Horn 1989; Manzotti & Rigamonti 1991; Declerck 1995; Sánchez López 1999), corresponds to sentential negation. In fact, there are languages in which there are two distinct morphological elements for each type of negation (cf. Ouhalla 1993). In Romance languages, there is no morphological distinction between these two kinds of negation. In fact, (some types of) adverbial clauses don't behave alike w.r.t. the two types of negation. Conditional clauses, for example, are usually interpreted as being outside the scope of sentential negation. They may, however, fall under the scope of focus negation.

(27) O Zé não irá à praia se estiver muito calor. >> O Zé não irá à praia.
Zé won't go to the beach if it is too hot. >> Zé won't go to the beach.

(28) O Zé NÃO irá à praia SE ESTIVER MUITO CALOR. >> O Zé irá à praia.
(noulras condições)
Zé won't go to the beach if it is too hot. >> Zé will go to the beach.
(under different conditions)

Temporal clauses, by contrast, are usually interpreted as being under the scope of sentential negation, but they may also be the only focus associated with focus negation:

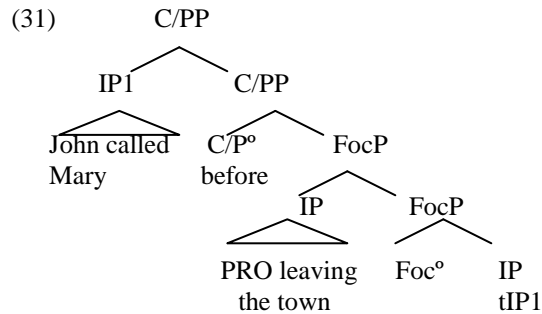
(29) O Zé não ligou a televisão quando chegou a casa. >> O Zé não ligou a televisão.
Zé didn't turn the TV on when he got home. >> Zé didn't turn the TV on.

(30) O Zé NÃO ligou a televisão QUANDO CHEGOU A CASA. >> O Zé ligou a televisão mais tarde.
Zé did not turn the TV on when he got home. >> Zé did turn the TV on later.

If, in Portuguese, both types of negation correspond to a functional node above the VP domain and if scope of negation involves c-command, then right adverbial clauses must occupy at least a TP internal position.

As to focus particles, the same considerations may apply: if scope involves c-command, then right non-peripheral adverbial clauses must occupy at least a TP internal position.

This type of empirical evidence rules out an analysis according to which right adverbial clauses are merged as left specifiers in the functional domain, and matrix-subordinate order is derived by moving the matrix IP further to the left. This kind of approach, which would be compatible with an antisymmetric framework, has been tentatively pursued in Bianchi 2000. Note, however, that in her analysis scope facts are unaccounted for, since negation and focus particles in the matrix clause would never c-command the adverbial clause:

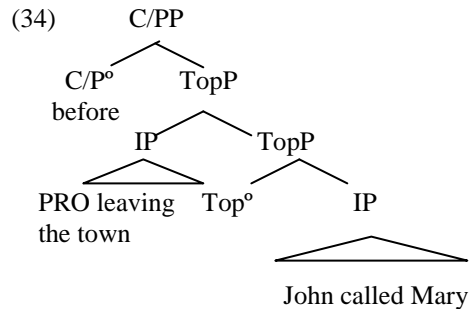


Besides, her analysis predicts that a pronominal subject of an initial subordinate adverbial clause shouldn't be coreferential with a matrix DP, contrary to fact:

(32) Before she_i left, Mary_i gave me a call.

(33) Before PRO_i leaving, Mary_i gave me a call.

In her configuration, and assuming, as she does, that specifiers c-command out of their maximal projection (cf. Kayne 1994) and that the adverbial connective and the subordinate clause don't form a constituent, a pronominal subject of an initial adverbial clause would c-command the matrix subject:



The empirical facts presented above all point to a base generation of right adverbial clauses in a TP internal position. The exact structural status of this position, i.e. whether it is an adjunction position or not, will be discussed in the next sections.

3.2. An ambiguous position w.r.t. VP: evidence from constituency tests

Classical analyses of right non-subcategorised constituents treat them as structural adjuncts, i.e. as simultaneously being sisters and daughters of a maximal or intermediate projection. Empirical evidence for this ambiguous status comes from several constituency tests. As a matter of fact, the behaviour of right adjuncts in constituency tests seems to show that they are both VP internal and VP external. The adjunction representation is in accordance with these facts and with the standard idea of Functional Grammar, which is continued in Montague's framework, that non-subcategorised constituents expand the core predicate into an enlarged complex predicate.

i) Right adjuncts can either be preposed along with the rest of the VP or be stranded with VP preposing:

- (35) a. Fechar a porta a cadeado por estar com medo, o Zé nunca (o) fez.
Close the door with a lock because [he] was scared, Zé never did.
b. Fechar a porta a cadeado, o Zé nunca o fez por estar com medo.
Close the door with a lock, Zé never did because [he] was scared.
- (36) a. Comprar um carro novo se for aumentado, o Zé fá-lo-á certamente.
Buy a new car if [he] gets a raise, Zé will certainly do it.
b. Comprar um carro novo, o Zé fá-lo-á certamente se for aumentado.
Buy a new car, Zé will certainly do it if [he] gets a raise.
- (37) a. Repetir todas as frases para aborrecer o irmão, o Zé está sempre a fazê-lo.
Repeat every sentence to annoy his brother, Zé is always doing it.
b. Repetir todas as frases, o Zé está sempre a fazê-lo para aborrecer o irmão.
Repeat every sentence, Zé is always doing it to annoy his brother.
- (38) a. Preparar a ceia como a mãe fazia, o Zé certamente não o fará.
Prepare the dinner as his mother did, Zé certainly will not do.
b. Preparar a ceia, o Zé certamente não o fará como a mãe fazia.
Prepare the dinner, Zé certainly will not do as his mother did.

ii) Right adjuncts can be substituted with the VP by a VP proform, or be left outside it:

- (39) a. O Zé apagou a luz quando foi para a cama, mas o Pedro só o fez quando acabou de ler o livro.
Zé turn his light off when he went to bed, but Pedro only did it when he finished his book.
- b. O Zé lavou os dentes antes de ir para a cama, e o Pedro fê-lo mal acabou de jantar.
Zé washed his teeth before going to bed, and Pedro did it as soon as he finished dinner.
- (40) ?O Zé tomou um café porque estava com sono, e a Ana fê-lo porque estava com tonturas.
Zé took a coffee because he was sleepy, and Ana did it because [she] felt dizzy.

As pointed out in Jackendoff 1990 and Pesetsky 1995, a.o., this kind of empirical evidence (VP preposing and VP substitution), favours a right adjunction configuration for right non-subcategorised constituents, which include adverbial clauses.

3.3. *Merge in a high position w.r.t. complements:
evidence from binding; adjunct-complement asymmetries*

Larson 1988, 1990 and Stroik 1990 present empirical evidence from binding and from coordination possibilities in favour of a generation of right adjuncts as the most embedded constituents within VP, in the specifier position of successively lower VP shells, having approximately the same status as complements.

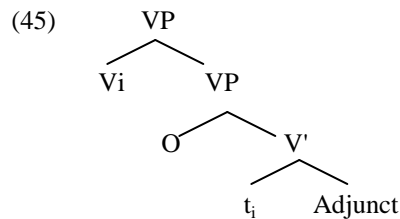
As for the coordination facts, it seems to me that they don't represent empirical evidence for the constituent status of the complement-adjunct complex (cf. also Jackendoff 1990). The cases referred by Larson seem instead to be cases of gapping:

- (41) O Zé cumprimentou a mãe quando chegou a casa e a vizinha quando foi à janela.
Zé greeted his mother when he came home and his neighbour when [he] went to the window.
- (42) O Zé comprará uma bicicleta se ganhar cem contos e um jipe se ganhar mil contos.
Zé will buy a bicycle if he wins one hundred contos and a jeep if [he] wins a thousand contos.

In fact, coordination of subject and adjunct are also possible, and it is difficult to see how this string could be a constituent:

- (43) O Zé entregou o exame antes de o tempo acabar e a Ana quando o tempo terminou.
 Zé gave his exam before the time ended and Ana when time was over.
- (44) A Ana irá à praia se estiver calor e o Zé se houver ondas.
 Ana will go to the beach if it is hot and Zé if there are waves.

The binding facts are more complex. English data supports a structure in which complements c-command right adjuncts (cf. Larson 1990; Stroik 1990; Phillips 1997; a.o.): the fact that a quantifier can bind a pronoun indicates that the binder has scope, i.e. c-commands, the bindee. Since a complement can bind into an adjunct in English, Larson concludes that the object c-commands the adjunct, which would then occupy the most embedded position within VP:



In Portuguese, not all the constructions which Larson mentions are available (e.g. licensing of negative polarity items). There is however evidence from binding of a possessive pronoun by a quantifier (*cada ... seu*) and from binding of reciprocals (*um ao outro*). Contrary to what Larson and others report for English, in Portuguese there is a complement/adjunct asymmetry w.r.t. these phenomena. Although there is some variation among Portuguese speakers, it seems safe to say that, while binding from an object into a complement is perfect, binding from an object into an adjunct is marginal or even ungrammatical.

- (46) a. O João entregou cada filho_i à sua_i mãe.
 Joao gave each son to his mother.
 b. O João pôs cada boneco_i no seu_i lugar.
 João put each puppet in its place.
- (47) a. ??/*O João elogiou cada aluno_i no dia da sua_i chegada.
 John praised each student the day of his arrival.
 b. ??/*O João agrediu cada amigo_i na sua_i casa.
 John hit each friend in his house.

- (48) a. O João apresentou os colegas_i um ao outro_i.
João presented his colleagues one to the other (to each other).
b. O João pôs os livros_i uns ao lado dos outros_i.
João put the books one next to the other.
- (49) a. ??/*O João agrediu os colegas_i em casa uns dos outros_i.
João hit his colleagues in the house one of the other (in each other's houses).
b. *O João convidou os amigos_i no aniversário um do outro_i.
João invited his friends in the birthday one of the other (in each other's birthday).

There are other languages (e.g. Norwegian – cf. Nilsen 2000) in which there seem to exist complement/adjunct asymmetries with respect to binding of pronouns by quantifiers and with respect to binding of reciprocals. Therefore, the kind of binding evidence which Larson brings in favour of an analysis according to which adjuncts are the most embedded constituents within VP doesn't seem to hold crosslinguistically. Why is this so? A plausible answer is that crosslinguistic variation in this area may be related to the different morphological shape of anaphors and pronouns in these languages (i.e. their being specified or not for gender and number; their having an ambiguous status as pronouns and anaphors or not...).

Another piece of evidence against an adjunct-as-complement analysis for adverbial clauses comes from complement-adjunct asymmetries w.r.t. binding from a pronominal complement into a DP subject of a subordinate clause. These facts are mentioned for English in Williams 1994 (cf. also Bianchi 1997, 2000):

- (50) a. Mary shot him_i before John_i could leave.
b. *Mary told him_i that John_i could leave. (Williams 1994)

The same holds for Portuguese:

- (51) a. *Este médico só lhe_i contou que o Zé_i já estava muito doente.
This doctor only him told that Zé already was very sick.
b. Este médico só o_i tratou quando o Zé_i já estava muito doente.
This doctor only him treated when Zé already was very sick.
c. Este médico só o_i tratou porque o Zé_i estava muito doente.
This doctor only him treated because Zé already was very sick.

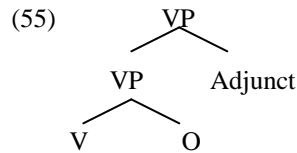
These empirical facts seem to support a right adjunction analysis for adverbial clauses, instead of a complement one, since the object pronoun doesn't seem to c-command the adverbial clause.

However, Bianchi 1997, 2000 suggests that the situation is a little bit more complex. Citing Brody 1994, Bianchi gives an example of a complex sentence, where binding evidence is contradictory: quantifier binding points to a complement position for the adverbial clause; principle C effects point to an adjunction position for the same clause:

- (52) I sent each boy_i to her_k [in order to make Mary_k meet him_i]
(Brody 1994)
- (53) ?La_i presenterò ad ogni studente_k [solo dopo che Maria_i lo_k avrà esaminato] (Bianchi 2000)
- (54) ?Apresentá-la_i-ei a cada aluno_k [depois de a Maria_i ter corrigido o seu_k teste.]

This internal contradiction clearly shows that binding theory formulated as it is in Larson's work has to be revised. Principle C and anaphoric/quantifier binding relations don't seem to obey/follow exactly the same criteria, as Bianchi 1997 observes. Leftness effects, as suggested in Bianchi's work (cf. also Barss & Lasnik 1986; Jackendoff 1990), also seem to play a role.

If only principle C obeys a strict c-command condition, then empirical facts point to an adjunction configuration instead of a complement one:



In fact, classical constituency tests (cf. Jackendoff 1990; Pesetsky 1995; Phillips 1997) all point to an adjunction configuration: it is possible to extract either an object or an adverbial clause, but the extraction of the <object – adverbial clause> complex gives rise to ungrammatical results. Hence, it doesn't behave as a constituent.

- (56) a. Foi [a televisão] que o Zé ligou quando chegou a casa.
It was the TV that Zé turned on when [he] came home.
b. Foi [quando chegou a casa] que o Zé ligou a televisão.
It was when [he] came home that Zé turned on the TV.
c. *Foi [a televisão quando chegou a casa] que o Zé ligou.
It was the TV when [he] came home that Zé turned on.
- (57) a. [A televisão], o Zé ligou quando chegou a casa.
The TV, Zé turned on when [he] came home.

- b. [Quando chegou a casa], o Zé ligou a televisão.
When [he] came home, Zé turned on the TV.
- c. *[A televisão quando chegou a casa], o Zé ligou.
The TV when [he] came home, Zé turned on.

Other well-known phenomena in the government and binding framework oppose adjuncts to complements: long extraction with *wh*-islands and extraction from inside an adjunct:

- (58) a. ?[Quem] é que o João não sabe [onde] é que a Luísa recebeu [-] [-]?
Who is it that João doesn't know where Luisa has received?
- b. *[Onde] é que o João não sabe [quem] é que a Luísa recebeu [-] [-]?
Where is it that João doesn't know who Luisa has received?
- (59) a. [Quem] é que o João disse [que a Luísa abraçou [-]]?
Who did João say that Luisa hugged?
- b. *[Quem] é que o João sorriu [quando a Luísa abraçou [-]]?
Who did João smile when Luisa hugged?
- (60) a. [A quem]_i quer o Zé [que o Paulo dê este livro [-]_i]?
To whom does Zé want that Paulo gives this book?
- b. *[A quem]_i quer o Zé convidar a Ana [quando o Paulo telefonar [-]_i]?
To whom does Zé want to invite Ana when Paulo phones?

If Bianchi 1997 hypothesis is correct, the binding facts considered above which don't involve principle C don't necessarily constitute evidence in favour of a complement-like position for right adjuncts. In fact, coordination facts (which, as we saw, are problematic), are the only empirical evidence against an adjunction configuration. All other phenomena point to an adjunction analysis: constituency tests, complement/adjunct asymmetries... Therefore, a right adjunction analysis seems to be empirically superior to a complement analysis, and quantifier binding data must be reanalysed.

The fact that in English there seems to exist contradictory evidence as to the structural position of adjuncts (i.e. binding tests vs. constituency tests) led Pesetsky 1995 to postulate that there are two different syntactic structures: a layered structure, which accounts for evidence given by constituency tests, and a cascade structure, which accounts for evidence given by binding relations and allegedly by coordination tests. This apparent contradictory evidence came to be known as 'Pesetsky's paradox'. Phillips 1997 solves this paradox otherwise: he proposes that structures are built derivationally from left to right (cf. Costa 2002b for an implementation of this idea to Portuguese word order).

However, if Bianchi 1997 is correct, it is possible that Pesetsky's paradox isn't a paradox after all.

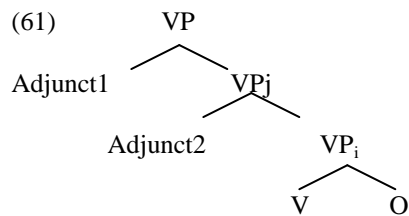
3.4 Alternatives to right adjunction: potential problems of a right adjunction analysis

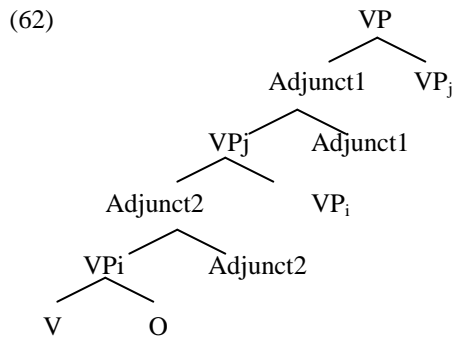
Are there alternatives to the right adjunction analysis compatible with the empirical facts mentioned above?

3.4.1. *Barbiers 1995*

Apart from theoretical motivations (cf. Kayne 1994), right adjunction (and adjunction in general) has been questioned on the basis of the observation that it is too unconstrained and it overgenerates (cf. Haider 2000; a.o.). Costa 1998, for example, chooses to assume the analysis of Barbiers 1995 because he observes some restrictions on right adjunction which in an unconstrained theory of adjunction wouldn't be accounted for. Haider 2000 also discards right adjunction on the basis of empirical evidence. The objections to right adjunction advanced by these authors are the following: i) some adverbs cannot occur in final position (e.g. prt. *bem*); ii) adverbs cannot be stacked in final position; iii) sentence adverbs cannot occur in final position (without an intonational break); iv) in VO languages, PP adjuncts and adjunct clauses cannot occur to the left of VP. According to these authors, the adjunction approach would predict a symmetric distribution for left and right adjuncts. However, this is not always the case.

In Barbiers' system, VP adjuncts are always adjoined to the left, as in (61). The final position is derived by moving the VP successively to the left into the specifier position of the left adjuncts, as in (62). It corresponds then to a VP intraposition strategy, which according to Barbiers is motivated by a general principle of semantic interpretation. In Barbiers system, this movement is clearly driven by semantic properties. Besides, it is optionally overt, and derives mirror effects of adjuncts to the left and to the right in Dutch.





A problem with such a proposal is the optional character of this VP intraposition. In fact, in Dutch it seems to apply only in some cases. In Romance languages, however, which are all VO languages, this movement seems to be obligatory when the adjunct is a PP or a clause. The behaviour of adverbs is more free (cf. Costa 1998). In OV languages, on the contrary, overt VP movement seems to be disallowed, and only the adjunct-object-verb word order is available. The correlation between the OV/VO distinction and left or right position of adjuncts doesn't receive a principled explanation in Barbiers' system. That such a correlation exists, as well as a correlation between initial/final position of adverbial connectives and final/initial position of adverbial clauses, is shown in Ernst (2002) and in typological studies (cf. Diessel 2001; Dryer 2000):

- (63) Mary [Joe gha] ke ehtsi
 Mary Joe for slippers 3,is.making
 PP V
 'Mary is making slippers for Joe.'

- (64) Mary cut the fish [with the knife]
 V PP

- (65) au na talai Elia [i 'Orovou]
 1SG FUT send Elia to 'Orovou
 V PP
 'I'll send Elia to 'Orovou.'

Also, in a Barbiers type system, the fact that heavy adjuncts, namely adjunct clauses, occur more easily to the right in a language which allows both left and right VP adjuncts doesn't receive a straightforward explanation: why should the weight of an adjunct or its category trigger more easily a movement which has a semantic motivation? And if the motivation for VP intraposition is semantic, why isn't it universally overt or covert? In short, a Barbiers type analysis doesn't

solve the problems of VP adjuncts which occupy a fixed position either to the left or to the right: it will have to derive this from other factors.

Finally, since in Barbier's system the final position of adjuncts is taken to be VP movement to the specifier position of the adjunct, it is difficult to see how this movement could obtain with certain adverbial clauses which have been analysed as free relatives (cf. Mória 2001 for Portuguese). In these cases, presumably, the specifier position of the clause is filled with a *wh*-element. Unless the free relative is taken to be embedded in another category, VP movement should not be allowed:

- (66) O Zé ligou a televisão [_{CP} [quando]_i] [_C [_{IP} chegou a casa [-]]_i].
 Zé turned on the TV when [he] came home.

The apparent problems of right adjunction mentioned in Costa 1998 and Haider 2000, for example, may be undermined if we consider that:

- i) the restriction on the final position of adverbs like *bem* must also be accounted for in left adjunction analyses, i.e. it has to be explained why in this particular case VP intraposition doesn't take place;
- ii) as Costa himself mentions (cf. Costa 2002a), the restriction on stacked adverbs in final position may be a consequence of lack of supporting lexical material (cf. Costa 2000);
- iii) some of the cases usually referred as 'overgeneration' may perhaps be explained with an adequate prosodic theory. For example, it has been described that subject-oriented adverbs cannot occur in final position. This position is only possible for manner readings (cf. Costa 1997, 1998; Delfitto 2000; a.o.):

- (67) John cleverly has spoken to his mother. (subject-oriented)

- (68) John has spoken to his mother cleverly. (manner)

This is usually given as an argument against right adjunction (cf. Costa 1997, 1998; Delfitto 2000). However, the subject-oriented reading in final position is rescued, provided that there is an intonational break before the adverb and a special intonational contour (cf. also Costa 1997: n. 3):

- (69) John has spoken to his mother || cleverly.

It may be the case that what is at stake here is a question of prosody and intonational boundaries. If there is no intonational boundary, the adverb will be interpreted as being VP internal and therefore only the manner reading is available. This kind of behaviour can also be found with adverbial clauses: sentence adjunct clauses can only occur in final position after an intonational break. To my knowledge, no one has claimed that sentence adverbial clauses

final position is ungrammatical just because it must be preceded by an intonational break.

(70) Uma vez que o professor está doente, não haverá aula.
As the teacher is sick, there will be no class.

(71) Não haverá aula, || uma vez que o professor está doente.
There will be no class || as the teacher is sick.

But, of course, more investigation on the syntax-prosody interface must be done to sort this out.

iv) word order patterns take into account categorial specifications. Note that multiple final PP adjuncts and multiple final adverbial clauses are allowed (cf. also Ernst 2002), which suggests, as Costa 2002a notes, that different categories may have a different syntactic status, i.e. adverbs are a special case:

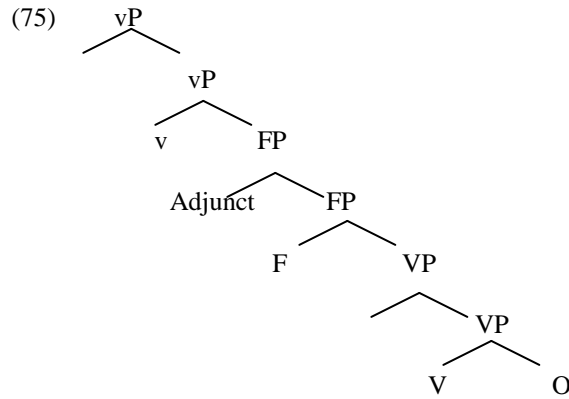
(72) ??O Zé contou a história rapidamente entusiasmadamente
desajeitadamente (*provavelmente).
Zé told the story quickly enthusiastically
clumsily probably.

(73) O Zé contou a história com entusiasmo em voz alta para que todos o
pudessem ouvir.
Zé told the story with enthusiasm in a loud voice in order that
everybody him could listen.

(74) O Zé ligou a televisão logo que chegou a casa para ouvir as
notícias porque lhe disseram que tinha havido um golpe de estado.
Zé turned on the TV as soon as he came home in order to listen to the
news because he was told that there had been a coup d'état.

3.4.2. *Cinque 1999*

Cinque 1999 (cf. also Laenzlinger 2000) suggests an alternative solution to the right adjunction analysis. They suggest to treat right adjuncts as being base-generated to the left inside VP either as specifiers of low functional projections or null verbal heads, and derive the final right position by moving successively VP to specifier positions.



However, in Cinque and Laenzlinger proposals, it is necessary to postulate the existence of multiple low functional heads for which there isn't any empirical evidence. Besides, to allow the moved VP to c-command its trace, it is necessary to revise the definition of c-command (though this is something inevitable in an antisymmetric framework). Note also that, in this structure, complements don't c-command right adjuncts, since they are merged in more embedded positions.

Haider 2000 also mentions several problems with a specifier approach. According to Haider, a specifier approach would predict the manifestation of 'edge effects' and opacity effects, which don't show up in these contexts.

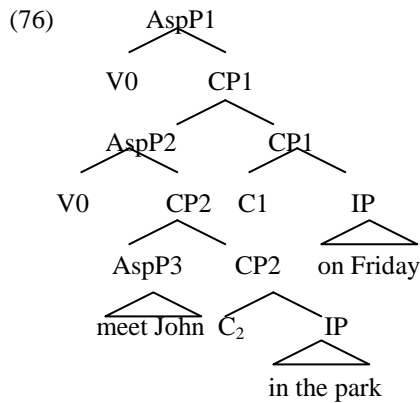
3.4.3. Nilsen 2000

Nilsen 2000 presents several empirical arguments against a Larsonian analysis of circumstantial adjuncts and in favour of a right adjunction analysis. However, since right adjunction goes against recent hypotheses about phrase structure (cf. Kayne 1994), Nilsen tries to find an alternative solution, compatible with the available empirical data. He discusses Barbier's left adjunction hypothesis, which, according to him, also has some problems (namely in what concerns relative clause extraposition), and makes an alternative proposal inspired by Kayne's work on DPs: right adjuncts are reduced relatives on the event.

In Nilsen's proposal, right adjuncts are reduced relatives selected by different functional categories following Cinque's hierarchy. The matrix VP is base-generated as specifier of the circumstantial PP, which is embedded in a relative CP selected by different functional categories according to the semantics of the circumstantial. Nilsen's analysis has some interesting ideas: it relates semantically left adjuncts (adverbs) to right adjuncts, which would all follow from Cinque's hierarchy of functional projections.

However, Nilsen's proposal faces some serious problems. If I have well understood, in Nilsen's approach there is no matrix VP. The VP is base-generated in specifier of adjunct PP inside the relative clause. The ordering of

adjuncts to the right is obtained by stacking the aspectual phrases which include VP in the specifier of PPs in successive reduced relatives:



This unusual structure, which parallels Kayne's 1994 account of relatives inside DPs, makes it impossible to derive 'mirror effects' in the ordering of adjunct PPs to the left and to the right of V, which was one of the nice achievements of Barbiers' analysis. In Nilsen's structure, no correlation exists between the relative ordering of adjuncts and the VO/OV distinction. Moreover, as far as I can see, word order in OV languages is underivable, such as the following German sentence, for instance:

- (77) Hans hat in der Schule Hanna geküsst.
Hans has in school Hanna kissed.

It must also be said that the ordering restrictions between adjuncts/adverbs may be the result of a universal semantic hierarchy, which is not necessarily represented in the structure.

Finally, Nilsen's arguments in favour of his structure over an adjunction analysis, in my opinion, are not very strong: they come mainly from data from Atkan-Aleut and from Nadëb, which are only briefly mentioned. I don't think these data present a real challenge for an adjunction analysis.

3.4.4. *Other proposals*

Another alternative for right adjuncts is given in Uriagereka 2001. Space limitations preclude a detailed discussion of his proposal. However, it seems to be based on wrong assumptions. To name only one, it seems to me that Uriagereka's initial argument is not correct. His examples of 'unlimited adjunction' are, as far as I can see, simple cases of coordination:

- (78) Beans grew for weeks (at a time), for years (at a time), for decades (at a time), for... (ex. (4) from Uriagereka 2001)

The same considerations could apply to arguments. It is coordination that is unlimited, not adjunction:

- (79) O João plantou couves, alfaces, cenouras, abóboras, tomates...
João planted cabbages, lettuces, carrots, pumpkins, tomatoes...
- (80) O João, o Zé, o Paulo, o António, o Luis...plantaram couves.
João, Zé, Paulo, António, Luis...planted cabbages.
- (81) O João deu um livro ao Zé, um disco ao António, uma boneca à Ana...
João gave a book to Zé, a record to António, a doll to Ana...

Adjunction is in fact limited to a semantic type per clause. This semantic type can be a complex one:

- (82) a. *O João ficou em casa porque estava com febre, porque estava a chover.
João stayed at home because he had fever, because it was raining...
- b. O João ficou em casa porque estava com febre, porque estava a chover, e porque não podia apanhar frio.
João stayed at home because he had fever, because it was raining, and because he couldn't be in the cold.

3.5. *Constraining right adjunction*

The main problem which is usually advanced against adjunction analyses is that they are too unconstrained, and overgenerate. However, it may be possible to constrain adjunction if several facts are taken into account: prosodic facts (weight effects); parametric differences between languages for basic word orders; and semantic principles, for instance, as it is done in work from Ernst 2000, 2002.

Following Ernst 2000, 2002, I am tempted to assume that crosslinguistically adverbial clauses can be adjoined either to the left or to the right inside VP according to head-selection directionality.

In fact, Ernst 2002 assumes what he calls a 'Parameterised Direction Hypothesis' for adjuncts (instead of a 'Linear Correspondence Hypothesis'): adjuncts may be generated either to the left or to the right according to head-complement direction.

4. The behaviour of left non-peripheral adverbial clauses

4.1. *Specifiers or adjuncts?*

In the first section, it was shown that adverbial clauses in preverbal position have a different informational status, and behave essentially as backgrounded constituents. In recent studies, it has been proposed that this kind of elements (sometimes designated as 'frame' adverbials or 'adverbs of setting') occupy a specific position, a topic-like position, in the left periphery of the clause (cf. Rizzi 1997, Cinque 1999).

The specifier approach predicts that there is a fixed position for this kind of elements. Furthermore, since multiple backgrounded constituents are allowed, a specifier approach also needs to assume that this category may be recursive:

- (83) Quando o Zé chega a casa, antes de cumprimentar quem quer que seja, vai lavar as mãos.
 When Zé comes home, before greeting anyone, [he] washes his hands.
- (84) Para que tudo corra bem, quando o Zé chegar, se a namorada também vier, ninguém pode fazer comentários.
 In order that everything goes well, when Zé comes, if his girlfriend comes too, nobody can make any comment.

An adjunction approach, on the contrary, may account better for multiple backgrounded constituents, and for the fact that the position of these elements in the left periphery is not restricted to a single position. In order to account for these facts, Rizzi 1997 is led to postulate that there are several TopP positions in the clause and that they may be recursive. He justifies his assumption on the grounds that there are locality effects which are best treated if an X-bar projection is involved. Rizzi's main objections to the adjunction approach are the following: i) the adjunction approach apparently is not feature-driven (cf. Chomsky 1993); ii) an adjunction approach doesn't explain why some positions are not available for adjunction, namely between the modal and VP, and between the matrix verb and its sentential complement; iii) the adjunction approach doesn't account for adjacency effects discussed in the literature; iv) the adjunction approach doesn't explain subject-object asymmetries when there is extraction across clitic left dislocation in French.

However, there are clear differences between these topic-like constituents and preposed constituents with a contrastive focus interpretation, which don't receive a straightforward explanation under the assumption that both Focus and Topic are functional nodes which project.

The objections raised by Rizzi may receive an explanation if we make the following assumptions: i) TP, the category which defines a propositional domain, acts as a boundary for the mapping of topics or presupposed con-

stituents (cf. Duarte 1996); ii) movement may be driven by interpretative/discourse reasons and is not necessarily feature-driven (cf. Duarte 1996; Mathieu & Sitaridou 2002; a.o.), contra Chomsky 1993; iii) the ban on the occurrence of topic-like constituents between X^o and complement may receive an explanation in terms of Case checking or argument selection, as Rizzi himself suggests.

The specific problem of adjacency and antiadjacency effects with topicalized constituents is a complex problem, which I won't be able to discuss here.

However, Rizzi himself suggests that for preposed adverbials an adjunction analysis may be available (cf. Rizzi 1997). In fact, as we will see below, arguments and non-arguments behave differently w.r.t. several facts.

If we assume a hierarchical structure for the clause with at least the functional categories in (85), there is evidence in Portuguese that left adverbial clauses may be adjoined to CP, to AgrSP, and to TP.

(85) [CP ([XP) [AgrSP ([NegP) [TP [vP [VP...

I maintain here the category AgrS, since there is evidence from standard Portuguese inflected infinitives and dialectal Portuguese inflected gerunds that this category exists indeed and plays a role.

Availability of adjunction to CP is illustrated below, where the adverbial clause occurs to the left of a *wh*-element, which according to current assumptions is in the specifier position of CP:

(86) Quando o Zé chegou, quem lhe abriu a porta?
When Zé arrived, who to-him opened the door?

(87) Se estiver a chover, como é que secamos a roupa?
If it is raining, how is [it] that [we] dry the laundry?

Availability of adjunction to AgrSP is shown in embedded sentences, where the adverbial clause occurs to the right of the complementizer and precedes the subject:

(88) O professor avisou que, quando o exame começasse, não poderia haver barulho nenhum.
The teacher warned [us] that when the exam started, there couldn't be any noise.

Costa 1998, however, argues that adjunction to agreement categories is not allowed. If Costa is right, a possible solution to this problem is to take the post-complementizer position as an instance of adjunction to a second CP projection with a null complementizer. In fact, in spoken non-standard Portuguese complementizers may be recursive when a topic-like element occurs in

the left periphery. The second complementizer will always have the same morphological shape as the first complementizer, either *que* for declarative embedded clauses or *se* for interrogative embedded clauses:

(89) Eu acho que ontem que ninguém te telefonou.
I think that, yesterday, that nobody you phoned.

(90) Não sei se amanhã se as lojas estão abertas.
[I] don't know if tomorrow if the shops are open.

Left adverbial clauses, like other constituents which occur in the left periphery, may occur between the two complementizers:

(91) O Zé disse que, se tivesse mais dinheiro, que compraria esta casa.
Zé said that, if [he] had more money, that [he] would buy this house.

(92) O Zé acha que, quando a água está fria, que o banho sabe melhor.
Zé thinks that when the water is cold that the bath tastes better.

The last possible position for preverbal adverbial clauses is adjunction to TP. Note that this possibility isn't explained in Rizzi 1997, since the Topic-Focus system is claimed to be higher than the inflectional layer. If, as in Costa 1998, we assume that in Portuguese V undergoes short movement, i.e. it only raises up to T, then it can be shown that adverbial clauses may be adjoined to TP. There is evidence that this is indeed a case of TP adjunction and not a case where the subject has been topicalized. As noted in Duarte 1987, 1996, 1997, a.o., some indefinite expressions cannot undergo topicalization in Portuguese:

(93) *Ninguém, o João encontrou.
Nobody, João found.

(94) *Nada, o Zé encontrou.
Nothing, Zé found.

Crucially, adverbial clauses may occur to the right of indefinite subjects, which plausibly are in specifier of AgrS. Note, however, that adjunction to TP isn't equally grammatical for every type of adverbial clause.

(95) Ninguém, quando o Zé tocou à campainha, abriu a porta.
Nobody, when Zé rang the bell, opened the door.

- (96) Ninguém, se ele tivesse de sair, seria capaz de o substituir.
Nobody, if he had to leave, would be able to replace him.
- (97) ?Ninguém, por ser ainda muito cedo, vinha abrir a porta.
Nobody, because it is still too early, came to open the door.
- (98) ?Ninguém, para desinfetar uma ferida, usa ainda mercuriocromo.
Nobody, to disinfect a wound, uses still mercury.

Adverbial clauses, however, contrary to adverbs, may not be adjoined to the left of VP. In the following sentences, the matrix verb has raised to I and the adjunct is presumably left adjoined to VP:

- (99) O Zé foi ontem a minha casa.
Zé went yesterday to my house.
- (100)*O Zé foi quando saiu da faculdade a minha casa.
Zé went when he left the faculty to my house.

This is one of the differences between different categories of adjuncts which may lead us to think that categorial specifications play a role in the grammar. In fact, generative grammar, as mentioned in Kortmann 1996, has never given an adequate explanation for the categorial difference between adverbs, prepositions and conjunctions. The [+/- N] / [+/- V] feature system of Chomsky 1970 is insufficient to account for these categories. With a better understanding of the specific nature of different classes of invariable words we may achieve an explanation for the different syntactic behaviour of different categories of adjuncts.

4.2. *A moved position or a base position? The status of left backgrounded constituents*

The preverbal position of adverbial clauses may be the result either of high base generation or of leftward movement from the lower VP internal position. What kind of evidence supports one or the other analysis?

Coreference dependencies between matrix and subordinate subject seem to favour a base generation analysis. Note that Cinque (1990: 90 ff.) also argues in favour of a base-generation analysis for initial PP adjuncts. In fact, a DP subject of a subordinate clause may be coreferential with a pronominal subject of the matrix clause only when the subordinate clause is preposed:

- (101) a. *[-]_i abriu a janela quando o Zé_i entrou.
[He] opened the window when Zé came in.
b. Quando o Zé_i entrou, [-]_i abriu a janela.
When Zé came in, [he] opened the window.

- (102) a. *[-]_i ainda não parou de chorar desde que o Zé_i chegou a casa.
[He] hasn't stopped crying since Zé came home.
b. Desde que o Zé_i chegou a casa, [-]_i ainda não parou de chorar.
Since Zé came home, [he] hasn't stopped crying.
- (103) a. *[-]_i saiu mais cedo porque o Zé_i estava doente.
[He] left earlier because Zé was sick.
b. Porque o Zé_i estava doente, [-]_i saiu mais cedo.
Because Zé was sick, [he] left earlier.

Assuming that Principle C of the binding theory precludes a referential expression from being c-commanded by a coreferent element, these contrasts may be explained if the left adverbial clause is taken to be left generated in the b. sentences above. Otherwise, it is necessary to assume that reconstruction doesn't take place in the special case of non-argumental constituents. Note that a preposed complement clause must be reconstructed, hence there are complement/adjunct asymmetries in this respect.

- (104) a. *Ele_i acha mesmo que o Zé_i está doente.
He thinks really that Zé is sick.
b. *Que o Zé_i está doente, ele_i acha mesmo.
That Zé is sick, he really thinks.

If movement were involved both in argument and in non-argument preposing, then we would have to accord an exceptional status to adverbial clauses in what concerns a phenomenon which shouldn't have exceptions, since it involves the LF component, which presumably has quite universal properties.

The second type of evidence which may help to decide between a base generation hypothesis and a movement hypothesis comes from lack of reconstruction under negation. Adverbial clauses in initial position don't reconstruct under negation.

- (105) a. O Zé não faltou à aula porque tinha exame. (Faltou por outra razão.)
Zé didn't miss the class because [he] had exam. ([he] missed [it] for another reason.)
b. Porque tinha exame, o Zé não faltou à aula. (*Faltou por outra razão.)
Because [he] had an exam, Zé didn't miss the class. ([he] missed [it] for another reason.)

- (106) a. O Zé não tirou os sapatos quando chegou a casa. (Tirou mais tarde.)
Zé didn't take off the shoes when [he] came home. ([he] took [them] off later.)
- b. Quando chegou a casa, o Zé não tirou os sapatos. (*Tirou mais tarde.)
When [he] came home, Zé didn't take off the shoes. ([he] took [them] off later.)

However, other preposed constituents, which behave as contrastive topics, may reconstruct under negation (cf. Duarte 1996).

- (107) À Ana, o Zé não ofereceu flores. (Ofereceu flores à Clara.)
To Ana, Zé didn't offer flowers. (He offered flowers to Clara.)
- (108) Com esses meninos, o Zé não brinca. (Só brinca com os primos.)
With these children, Zé doesn't play. (He only plays with his cousins.)

In the case of PP adjuncts, the reconstruction, and hence the contrastive reading, is possible with a special intonational contour. (109) is ambiguous between a contrastive and non contrastive reading:

- (109) Por essa razão, o Zé não faltou à aula.
For that reason, Zé didn't miss the class.
- a. o Zé faltou à aula, mas não por essa razão
Zé missed the class, but not for that reason.
- b. o Zé não faltou à aula e isso aconteceu por uma determinada razão.
Zé didn't miss the class and this happened for some reason.

The fact that preverbal adverbial clauses don't reconstruct under negation seems to support a base generation hypothesis, instead of a movement one. As we observed, preposed arguments behave differently. This different behaviour is easily explained, since arguments (but not adjuncts) have to fulfil thematic and Case requirements, and hence be merged in VP internal positions. A base generation of initial adjunct clauses would then obey an economy principle 'Merge over Move' (cf. Chomsky 1993; 2001). A stipulation of a semantically vacuous movement would be avoided. The ambiguous status of PP adjuncts is plausibly a consequence of their being more argument-like than adjunct clauses. For the time being, I don't have an adequate explanation for these contrasts.

A third argument in favour of a base generation approach to preverbal adverbial clauses comes from the unavailability of long dependency readings:

- (110) a. O Zé disse que o Pedro desmaiou quando chegou a casa.
(ambiguous)
Zé said that Pedro fainted when [he] came home.
b. Quando chegou a casa, o Zé disse que o Pedro desmaiou.
(non ambiguous)
When [he] came home, Zé said that Pedro fainted.
- (111) a. O Zé disse que o Pedro era antipático por ser muito tímido.
(ambiguous)
Zé said that Pedro was antipathetic because [he] is very shy.
b. Por ser muito tímido, o Zé disse que o Pedro era antipático.
(non ambiguous)
Because [he] is very shy, Zé said that Pedro was antipathetic.
- (112) a. O Zé vai dizer que o exame vai ser fácil se os alunos tiverem estudado. (ambiguous)
Zé will say that the exam will be easy if the students have studied.
b. Se os alunos tiverem estudado, o Zé vai dizer que o exame vai ser fácil. (non ambiguous)
If the students have studied, Zé will say that the exam will be easy.
- (113) a. O Zé disse que o director tinha escrito uma carta a explicar a situação para que todos ficassem mais descansados. (ambiguous)
Zé said that the director had written a letter explaining the situation in order that everybody be less worried.
b. Para que todos ficassem mais descansados, o Zé disse que o director tinha escrito uma carta a explicar a situação. (non ambiguous)
For everybody to be less worried, Zé said that the director had written a letter explaining the situation.

Note that an analysis according to which adverbial clauses in initial position are a case of Portuguese topicalization or clitic left dislocation with a null resumptive pronoun doesn't explain why adverbial clauses in initial position, contrary to argumental topics, strongly resist reconstruction and long-dependency readings:

- (114) Com esses meninos, o Zé disse que o Pedro não brincava.
With these children, Zé said that Peter wouldn't play.
- (115) À Ana, o Zé disse que o Pedro gostava de oferecer flores.
To Ana, Zé said that Peter liked to offer flowers.

- (116) Nesta prateleira, o Zé disse que não tinha arrumado o livro.
 In this shelf, Zé said that [he] hadn't put the book.

However, there seem to be contexts in which the long dependency reading is available: with declarative verbs long dependency reading is blocked, but with epistemic verbs it is allowed:

- (117) Quando chegar a casa, o Zé acha que o Pedro vai almoçar.
 When (he) get(s) home, Zé thinks that Pedro is going to lunch.
- (118) *Quando chegar a casa, o Zé disse que o Pedro vai almoçar.
 When (he) get(s) home, Zé said that Pedro is going to lunch.

The influence of the type of matrix verb, as well as other factors (e.g. morphological tense), on the availability of embedded readings deserves further investigation.

Finally, Bianchi 1997 gives some evidence which may support a movement analysis, instead of a base generation one. In fact, she observes that there is conflicting evidence for the structural position of preverbal adverbial clauses. This kind of evidence comes once again from binding relations. In Italian, according to Bianchi, local reconstruction and long-distance reconstruction are at least marginally possible in what concerns binding by the matrix subject and direct object:

- (119) Dopo che lo_i abbiamo dimesso, ogni paziente_i è tornato a casa.
- (120) ?Dopo che lo_i avremmo operato, sono certo che nessun paziente_i avrà bisogno di una terapia riabilitativa.

In Portuguese, however, reconstruction seems quite bad in the corresponding sentences:

- (121) a. Cada aluno voltou para casa depois de o mandarmos embora.
 Each student went home after (we) sent him away.
 b. ?*Depois de o mandarmos embora, cada aluno voltou para casa.
- (122) a. O Zé não pôe nenhum livro no sítio depois de o consultar.
 Zé doesn't place any book on the shelf after he reads it.
 b. ?*Depois de o consultar, o Zé não pôe nenhum livro no sítio.
- (123) a. É obrigatório voltar a pôr cada livro no sítio depois de o consultar.
 One must place each book on the shelf after reading it.
 b. ?*Depois de o consultar, é obrigatório voltar a pôr cada livro no sítio.

- (124) a. Nenhum doente estava a ser medicado antes de eu o visitar.
No sick person was under medication before I saw him/her.
b. ?*Antes de eu o visitar, nenhum doente estava a ser medicado.

This contrasts sharply with reconstruction in topicalized complement clauses, which is perfectly possible:

- (125) a. Nenhum doente_i queria admitir que aquele médico o_i tinha enganado.
No patient_i was willing to say that that doctor had fooled him/her_i.
b. Que aquele médico o_i tinha enganado, nenhum doente_i queria admitir.
- (126) a. O médico teve de dizer a cada doente_i que aquele charlatão o_i tinha enganado.
The doctor had to say to each patient_i that that impostor had deceived him/her_i.
b. Que aquele charlatão o_i tinha enganado, o médico teve de dizer a cada doente_i.

Bianchi 1997 refers some cases with preposed adverbial clauses in which apparently there is contradictory evidence as to the existence of reconstruction or not:

- (127) ?Non appena Gianni_i lo_k ha visitato, pro_i ha consigliato ad ogni_i paziente_k una nuova terapia.

Corresponding Portuguese sentences, however, seem to be fairly bad:

- (128) ?*Logo que o médico_i o_k visitou, [-]_i aconselhou a cada doente_k uma nova terapia.
As soon as the doctor_i visited him_k, (he)_i gave each patient_k a new treatment.
- (129) ?*Depois de o João_i lhe_k ter falado, estou certo que [-]_i dirá a cada aluno_k para se matricular neste curso.
After João_i had spoken to him_k, (I'm) sure that (he)_i will tell each student_k to take this course.
- (130) ?*Depois de o João_i o_k ter interrogado, [-]_i disse a cada aluno_k para estudar mais.
After João_i had questioned him_k, (he)_i told each student_k to study more.

- (131) ?*Porque o Zé_i lhe_k telefonou, [-]_i convenceu cada aluno_k a vir à reunião.
Because Zé_i phoned him_k, (he)_i convinced each student_k to come to the meeting.
- (132) ?*Para o Zé_i o_k motivar, [-]_i disse a cada aluno_k que tinha feito muitos progressos.
So that Zé_i could motivate him_k, (he)_i told each student_k that (he) had done good progress.

Therefore, although I don't have an explanation for the contrasts between Portuguese and Italian data, I take these sentences not to constitute evidence against a base generation account for preverbal adverbial clauses.

A left base generation analysis seems to be preferable both on theoretical and on empirical grounds: i) Merge over Move (cf. Chomsky 1993; 2001); ii) lack of reconstruction effects; iii) no need to postulate a semantic vacuous movement; iv) no need to assume an exceptional status for adjuncts in what concerns reconstruction; v) adjunct clauses may be base generated to the left, since they don't have to obey thematic requirements nor Case licensing.

5. Conclusions

Let's now summarize the main conclusions of this study:

- (i) non-peripheral adverbial clauses may be merged either in a VP internal position or in a left peripheral position according to their informational status: the preverbal position corresponds to a backgrounded position;
- (ii) the postverbal position is a VP adjunction position, which follows verb-complement directionality across languages;
- (iii) the preverbal position is an adjunction position external to TP, which seems to act as a mapping boundary: adjunction may be either to CP, to AgrSP or to TP.

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